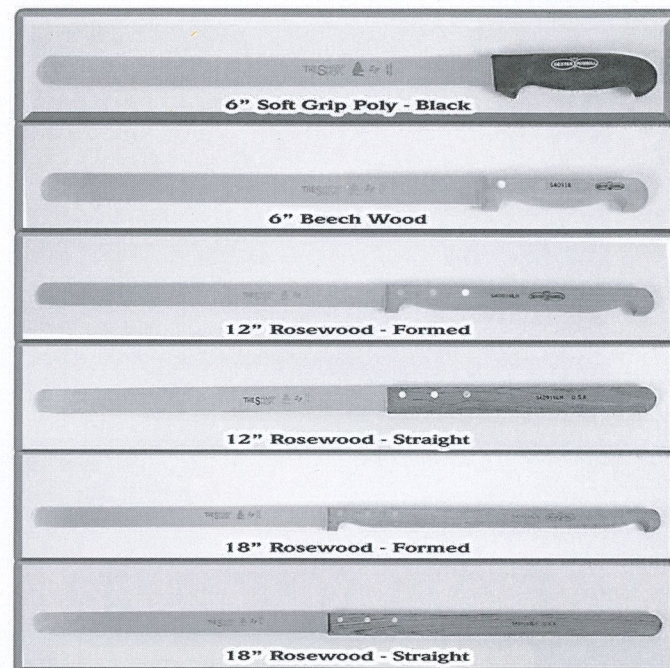


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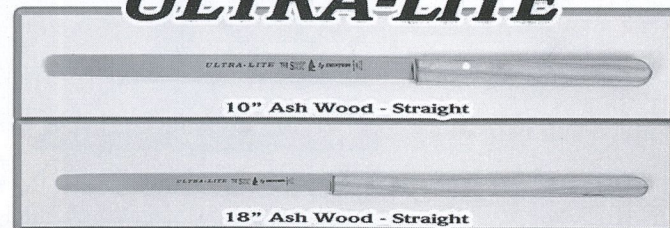
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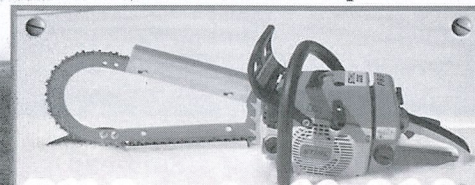
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COVER CROPS IN CHRISTMAS TREES

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Not so long ago, one of the marks of being a "good" Christmas tree grower was clean fields with nothing but trees; no grass, no weeds, only trees. That has changed. Now, soil cover is a good thing and soil health is a real concern. The debate currently shifted towards how much cover is appropriate and how to get there.

There exists a wide range of levels of "cover" - from letting native vegetation, or "weeds," grow a bit more to establishing a permanent cover crop that may stay in place for multiple rotations. We will look at some of these options starting with establishing a grass cover and ending with some in-between rotation cover ideas. These will be only as a sampling of options.

The most oft cited benefits for cover include erosion control, improved soil aggregation, better water infiltration, reduced herbicide use, fewer troublesome weeds, improved field trafficability, habitat

for beneficial insects, a clean surface for tree harvesting and increased soil organic matter. However, it is not all good. On the downside, slugs, snails and voles can thrive using the cover for habitat. Moreover, covers do use water, though there is debate how much and when. As a result, almost everyone utilizing permanent cover keeps the tree rows weed free. Some growers only establish the cover after trees are established for two years or more, especially in areas with limited rainfall. Lastly, cover crop establishment and maintenance does take time.

Establishing Permanent Grass Cover

The most commonly utilized permanent grass cover in Christmas trees



Figure 1. Hard fescue between rows.

are "fine fescues." This is a broad group of cool season grasses and includes various species, subspecies and seed varieties. For our purposes, we will look at hard fescue, sheep fescue, chewings fescue

(continued on page 24)

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and creeping red fescue. Some differences with each type are:

- Hard fescue is the most commonly used grass cover in Christmas trees in Oregon (fig.1). This is a bunching-type grass with excellent tolerance of drought, heat and low fertility. It is less matting than creeping red or chewings fescue.
- Creeping red fescue, as the name implies, can spread by small short rhizomes. It has a medium establishment rate and covers faster than sheep or hard fescue. Leaves tend to lay over and mat and has a longer growing season.
- Chewings fescue is similar to creeping red but without the rhizomes.
- Sheep fescue is another bunching-type grass. It grows slower and remains shorter than the above fine fescue grasses.

In talking to a number of Christmas tree growers, following are a number of establishment suggestions:

- Seeding timing – Best timing is in the fall (September) just before a soaking rain. Early spring seeding works, but it is difficult with saturated soils.
- Seeding amounts – on well-prepared sites 10-20 lbs./A is fine. Can use up to 30 lbs./A on poorly prepared sites.
- Site preparation – eliminate all weeds prior to seeding. Do not use any pre-emergent herbicides.
- Seeding methods – growers are very creative here (fig. 2). What is important is getting the seeds in firm contact with the soil. Some growers will lightly till or disc, next, seed with a drop spreader in the 2-3 ft. area between rows. Lastly, use some



Figure 2. A one pass cover crop seeder, tiller, roller (Tom Norby)

type of roller to make sure the seed is in contact with soil. If seeding prior to planting trees, there are wider Brillion type seeders that will seed wider widths.

- Additions – in seeding, a number of growers suggest adding an annual

grain such as cereal rye or oats to the seeding mix. This will provide a quick growing cover to minimize erosion on the bare soil. These can be mowed when they are heading out in the spring to prevent reseeding.

- Maintenance – the fine fescues are tolerant of fluazifop (Fusilade), so other grasses can be controlled in the cover crop. Some fine fescue varieties have been naturally selected for a low level of glyphosate (Roundup and others) tolerance, so glyphosate can be used to control competing weeds. Mowing two-three times in the first year or two will aid in establishing the fine fescues. After establishing the cover, some growers get by with only one mowing after seed set, unless there are other competing weeds in the cover.

Establishing Permanent Clover Cover

A few growers utilize clovers as cover. One attraction is their ability to fix nitrogen. Remember, little nitrogen is released to the trees while the clover is alive. It takes mowing or the death of the plant before the trees start to obtain nitrogen. Another benefit of clover or other flowering plants is that they provide pollen and nectar to beneficial insects that can help with aphid control.

Growers who have used clovers commented that many species are too aggressive and long-lived. Others have suggested that the clovers attract deer as well as voles.

- Seeding timing – “frost seeding” or sowing the seed after some frost heaving in February has worked successfully. Fall seeding in September before a soaking rain has also been successful.
- Seeding amounts and species – Dutch white clover (fig.3) has been used successfully in Christmas tree plantations. With seed drills 5-9 lbs./A is typical, and 7-15 lbs./A are required when broadcast seeding.

- Site preparation – eliminate all weeds prior to seeding. Do not use any pre-emergent herbicides.
- Seeding methods – Hand seeding or using a drop seeder works well. If no clovers have been present in the past three years, purchase seed that has been pre-inoculated with the appropriate Rhizobium. Since clovers tend to be aggressive users of water, some growers have waited until the trees are established before seeding clover between rows. Keep the tree rows clover/weed free to avoid competition.

Other Cover Options

For some, the prospect of maintaining a permanent cover is daunting on large acres. Maybe start small and see how that works.

A variation on the permanent cover would be to establish a cover between rotations and rest the field for a year. For example, an easily established grain, like spring oats and rye, can be seeded in the fall to prevent erosion. To build up organic matter a vigorous warm season grass such as sorghum-sudan can be planted when the soils warm up and while moisture is still present. The sorghum-sudan provides organic matter and helps break up compaction. Recent work from USDA-NRCS Corvallis Plant Material Center shows that some sudangrass hybrids can be grown in summer without irrigation if seeds are planted deeper (2 inches) to reach moisture in late May.

Selecting the Appropriate Cover Crop

Selecting the right cover crop can be a daunting process since many options are out there. Furthermore, local soil and climate characteristics are an essential part to be taken into consideration. To facilitate such selection of species and varieties to match the desired purpose, USDA made available a Pacific Northwest Cover Crop Selection Tool¹. This tool is designed for Oregon, Washington



Figure 3. Dutch white clover between rows (Windy Acres Tree Farm)

and Idaho areas. If you are looking for cover crop seed vendors in the Pacific Northwest, USDA Technical Notes No. 41 has a list of several vendors². Your local Soil and Water Conservation District is also a good contact for local advice and perhaps a conservation grant to help defray some costs.

References:

¹ Young-Mathews, A. P. Pavék, and D. Tilley. 2016. Pacific Northwest Cover Crop Selection Tool. West NTSC Plant Material Technical Note No. 2. USDA-Natural Resources Conservation Service, Portland, OR. Available at: <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/plantmaterials/technical/toolsdata/plant/?cid=nrcseprd894840>.

² Young-Mathews, A. and P. Pavék. 2014. Cover Crop Resources and Seed Vendors for Oregon and Washington. West NTSC Plant Material Technical Note No. 41. USDA-Natural Resources Conservation Service, Portland, OR. Available at: https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/orpmctn12333.pdf. ▲



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